

WHAT IS CLAIMED IS

1. An apparatus for preparing and feeding materials used to make a filter bag (1) to contain an infusion product, the apparatus comprising the following arranged in succession around the edge of a power-driven revolving wheel (70):

5 first means (71) for forming filter bag (1) pick-up tags (6) from a web (39) of suitable material and arranging them in suitable order around the edge of the revolving wheel (70);

second means (72) for feeding a continuous thread (31) and forming in it first loops (10) at regular intervals from each other at positions
10 corresponding to the pick-up tags (6) carried by the revolving wheel (70);

third means (73) acting on the tags (6) for delimiting separate faces (9a, 9b) on each tag (6) and folding these faces (9a, 9b) onto each other in such a way that the first loops (10) of thread are held between the faces (9a, 9b) of the tags (6);

15 fourth means (74) for joining the faces (9a, 9b) of each tag (6) to each other;

fifth means (75) for associating a web (17) of filter paper to the edge of the revolving wheel (70) and positioning it above the continuous thread (31) and the tags (6) connected to it;

20 sixth means (76) associated with the revolving wheel (70) for pushing a portion (7) of the continuous thread stretched on the edge of the wheel (70) through the web (17) of filter paper in such a way as to form a second loop (11) extending outwards from the wheel (70) and protruding

from a face of the filter paper web (17) opposite the face adjoining the tags (6).

2. The apparatus according to claim 1, where the filter paper web (17) has a layer of glue which can be thermally activated, further comprising seventh means (77) for attaching the second thread loops (11) and the tags (6) to the filter paper web (17).

3. The apparatus according to claim 1, wherein the first means (71) for forming the tags (6) comprise: a rotary knife (80) mounted near the edge of the revolving wheel (70), designed to cut a web (39) of suitable material into lengths, each corresponding to an individual tag (6); retaining
5 means (78) for holding the tags (6) to the edge of the wheel (70); and pegs (79) projecting outwards from the edge of the wheel (70), the pegs (79) being located on each side of the retaining means (78) and acting in combination with the latter in such a way as to place the tags (6) at predetermined positions around the edge of the wheel (70).

4. The apparatus according to claim 1, wherein the second means (72) for feeding the continuous thread (31) comprise a tubular spindle (81), equipped with an arm (82) projecting towards the wheel (70) and transversal to the axis of rotation (83) of the spindle (81), the spindle
5 (81) supplying the arm (82) with a continuous thread (31) and rotating the arm (82) in synchrony with the rotation of the wheel (70) in such a way as

to wind at least one first loop (10) of thread around the pegs (79) protruding from the wheel edge, each first thread loop (10) being placed on a tag (6) located between the pegs (79).

- 5 5. The apparatus according to claim 1, where the tag (6) has two adjacent faces (9a, 9b) delimited by a central fold line (21), wherein the third means (73) for delimiting the separate faces (9a, 9b) of the tags (6) comprise a fixed folding element (84) associated with the edge of the revolving wheel (70) and designed to intercept a lateral edge of the tag (6) as the latter moves past as one with the revolving wheel (70), the fixed folding element (84) gradually folding one face (9b) of the tag (6) onto the other face (9a) in such a way as to hold the first thread loops (10) between the faces (9a, 9b).

- 5 6. The apparatus according to claim 1, where the web (39) of tag (6) material has a layer of glue which can be thermally activated, wherein the fourth means (74) for joining the faces (9a, 9b) of each tag (6) to each other comprise a first heating device (85) associated with the outer edge of the revolving wheel (70) and located downstream of the third means (73) in the direction of rotation of the revolving wheel (70).

7. The apparatus according to any of the foregoing claims, wherein the fifth means (75) comprise a flexible element (86) trained around a pair of pulleys (87, 88), at least one of which is power driven, the

flexible element (86) lying against a peripheral portion of the wheel (70) and pressing the filter paper web (17) against the wheel (70) causing it to move forward together with the wheel (70).

8. The apparatus according to claim 7, wherein the flexible element (86) comprises a chain having links (89) and pins (90) which flexibly connect the links (89).

9. The apparatus according to claim 1, wherein the sixth means (76) comprise a needle (91) housed inside the wheel (70) and driven by actuating elements in synchrony with it, the needle (91) being designed: to rhythmically protrude from the edge of the wheel (70); to strike the
5 continuous thread (31); and to push the thread (31) through the filter paper web (17) to the opposite face of the filter paper web (17) adjacent to the flexible element (86).

10. The apparatus according to claims 8 and 9, wherein the needle (91) and the flexible element (86) are synchronized with each other in such a way that the needle (91) is driven through the chain at the links (89).

11. The apparatus according to claim 2, wherein the seventh means (77) for joining the filter paper web (17), the second loops (11) of thread (31) and the tags (6) comprise a second heating device (92), which

is associated with the edge of the revolving wheel (70) and which thermally reactivates the layer of glue on the filter paper web (17) at an area around the second loop (11) and a layer of glue on an edge (38) of the underlying tag (6) facing the opposite face of the filter paper web (17),

5 the second heating device (92) being designed to join one side of the filter paper web (17) to the second loop (11) and the other side of it to the tag (6).

12. The apparatus according to claim 9, further comprising means for making incisions or slits (22), at regular intervals on the filter paper web (17), in order to make it easier for the needle (91) to move through the filter paper web (17) to form the second loop (11).